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ABSTRACT

This report describes the evaluation process of Portland, Oregon's Student Mentoring Program (SMP), a program which brought college students from four private universities and at risk eighth grade students from four middle schools in mentoring relationships. The evaluation design is described, as are the various measurements used to assess program effectiveness, including teacher and parent interviews, the various questionnaires employed, and record data analysis. The practical considerations for data collection are also discussed. Results of the evaluation are reported in the following areas: (1) school attendance records; (2) school grades; (3) mentee interviews; (4) teacher and parent questionnaires; (5) interviews and structured statements; (6) mentor questionnaires; and (7) mentor year-end discussions. The report also discusses the utility of each instrument used, and concludes with recommendations concerning better and/or more useful evaluation considerations. Appendixes contain the evaluation forms, the statistical analysis of grades, a summary of the interviews, and the analysis of scores on the Tennessee Self-Concept Scale used in the evaluation. (GLR)

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EVALUATION REPORT
STUDENT MENTORING PROGRAM
1989-1992

Lewis and Clark College
Reed College
University of Portland
Warner Pacific College

Prepared by Cate Huisman, Program Coordinator, August 1992
with appendices by Dylan McGee and Brian Weir

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Short-term social programs such as the Student Mentoring Program (SMP) are notoriously hard to evaluate for several reasons. Data are difficult to collect, both from eighth-graders and their families (the eighth-graders have a tendency to take forms home and forget they ever existed), and from college students and middle-school teachers, who have many other things to do that they consider more important, especially near the ends of the academic year. Reliable measures are hard to find, particularly for the mentees, who are at an age of so much change that it is difficult to isolate what may have been caused by the SMP. And some of the effects of such a program may not be evident for several years, until the mentee matures more and remembers what s/he did with his/her mentor. By that time, the mentee is in a different school, and in many cases, because of the transient nature of the population that the SMP works with, s/he is in a different school district or even state or country as well.

Most of the evaluation was carried out by the coordinator, with advice from one psychology professor in the third year. Beyond this, faculty assistance in designing and carrying out the evaluation was not forthcoming. Two graduate students were recruited during the second year to assist, but their performance was unsatisfactory.

DESIGN

To collect as much information as possible and to increase the likelihood that effects on participants would be detected, the evaluation of the SMP used several repeated measures. These included:

- school grades
- school attendance records
- mentee interviews (year 1)
- Tennessee Self-Concept Scale (years 2 and 3)
- teacher questionnaires (year 3)
- parent questionnaires (years 2 and 3).

In addition, because quantitative measures were difficult for subjects to use and because these measures might not capture subtle effects, at the end of the second year several other qualitative measures were used to gather subjective information about how the program was viewed in the schools:

- interviews with principals
- structured statements from middle-school contacts
- structured statement from PPS liaison.

Finally, one pair of measures, used at the end of the academic year, gathered information about what mentors and mentees did together and what the mentors learned form the experience:

- mentor questionnaires
- mentor year-end discussions (year 2).

Each year several measures were used, but not every measure was used each year. The measures and the reasons for using each one are given in the next section.

In the third year of the program, the coordinator constructed a "strong" group of mentees to include five pairs from each middle school that were rated by the middle-school contacts to have had particularly good relationships with their mentors. Some scores from this group were compared with those of the rest of the group to test whether the strength of the relationship had a measurable effect on mentees.

MEASURES

School grades and attendance records: Because of its short duration and because it did not have an academic focus, the program did not anticipate measurable changes in these areas. However, data on grades and attendance were collected because they were easy to collect and quantify, and ultimately they were useful because they did show some change. For mentees, cumulative (whole-year) grade point average (GPA) and cumulative attendance for the seventh-grade year was compared with that of the eighth-grade year. Initially grades from the first quarter of the eighth-grade year were compared with those from the last quarter of the

eighth-grade year, but this measure was ineffective because grades tend to fall for all students during the year as they move from reviewing last year's material into the most advanced material of the new year.

Mentee interviews: In the first year, because of a concern that eighth-graders would find written questionnaires difficult to use, mentees were interviewed at the beginning and end of the academic year to get a more complete sense of the effectiveness of the program. The coordinator worked with the then-assistant dean of students at Reed to write an interview protocol, based on the stated goals of the program and adapted from a protocol that the dean had used with a group of high-school students in a college-prep program that Reed had run for several years. Copies of the interview protocols are included in Appendix D.

The coordinator hired interviewers, and interviews were conducted near the beginning of the school year and again near the end. The interviews were taped and transcribed in order to prevent the need for extensive note-taking; there was some concern that note-taking would embarrass or inhibit the mentees and affect the honesty of their responses. Transcription was extremely expensive, and a reliable means of quantifying the responses was never identified; hence this means of evaluation was abandoned after the first year.

Tennessee Self-Concept Scale (TSCS): This is a standardized test used frequently by professionals to assess young peoples' beliefs about themselves. When the use of interviews was discontinued, a substitute was needed to try to assess the effects of the program. If the mentees' ideas changed during the year with respect to their ability to do well in school, it was reasoned, that change should be shown by a change in score on this test between the beginning of the year and the end.

Teacher questionnaires: A member of the graduate student evaluation team designed these, with the help of the coordinator, at the beginning of the second year. The tests were not used until the third year, however, and the coordinator had difficulty collecting the data. Again, few teachers had time to fill out additional paperwork at their busiest times of the year--the beginning and the end. Some middle-school contacts had the clout to insist on it; others did not.

The questionnaire included eleven statements about the teacher's student in the SMP, and asked the teacher to rate how true each one was on a scale of one to five. Copies of the questionnaires are included in Appendix D.

Parent questionnaires: These questionnaires, written by another graduate student again with the assistance of the coordinator, were virtually identical to those for teachers, but the questions were addressed to the context of the home. Copies of the questionnaires are included in Appendix D. Questionnaires were relatively easy to collect at the beginning of the year, when parents assembled for the parents' meetings, but responses were much poorer at year-end, when questionnaires had to be distributed and collected through the mail. The coordinator tried unsuccessfully to encourage the colleges to have year-end activities to include parents, in part to collect these data.

Structured statements from principals, middle-school contacts, and the PPS liaison: At the end of the second year the college presidents requested that this information be collected. They recognized that quantifiable data would be difficult to collect, but wanted some sense of the value of the program to the schools. The coordinator wrote a short list of questions that she asked these individuals to address in short statements; a copy of this list is in Appendix D.

Mentor year-end questionnaires: The coordinator designed these short-answer questionnaires for use in the spring to find out from mentors specifically how much time they had spent in what activities with mentees. They were also asked to describe in one sentence what they had learned from the program. (A copy of this questionnaire is in Appendix D). It was difficult to get more lengthy or detailed written reports from this group, particularly at this time of the year.

Mentor year-end group discussions: The coordinator led these structured discussions at three of the colleges in the end of the second year in an attempt to find out more from mentors than was possible with the written questionnaires. Questions focussed on what had gone well and poorly in the program, what suggestions they had for the following year, and what they had learned. The coordinator took notes and made tapes of these discussions.

PRACTICAL CONSIDERATIONS FOR DATA COLLECTION

Everybody likes new programs, but nobody seems to like or understand the need for the questionnaires and requests for information that almost inevitably come with them. People fill out questionnaires and provide information only when a carrot or a stick is hanging over them, and the program was not always able to provide one. It was the coordinator's belief that data should not be collected if doing so would make families or school personnel resent the program.

Each fall, the coordinator wrote an evaluation outline for the PPS Office of Research and Evaluation, including details on how families would be informed of the research, how their permission would be requested, and how data would be kept confidential. This outline enabled the program to get permission to collect data in the schools and from the central administrative databank. (The coordinator had a previous relationship with this office that also helped.)

The program made an effort to make data collection as painless as possible for its staff and participants. The coordinator kept teacher questionnaires short and asked middle-school contacts when would be the best time and best way to collect them. Parent questionnaires were also short, and parents were asked to fill them out at the same time they did the rest of their paperwork. The coordinator explained to them first that they did not have to fill them out, or give permission for their children to be in the evaluation, in order for their children to be in the program.

The coordinator was careful, when administering the TSCS to mentees, to inform them that they were not required to take the test but that doing so would be helpful for the program, that the purpose was to evaluate the program--not them, and that neither their teachers nor their mentors would be informed of their scores. Unfortunately, the program had less control over the graduate student who administered the test during the second year, and some middle-school staff did not like his approach with the mentees. This did not appear to affect the program's ability to collect data in the third year, however.

A modest attempt to form a control group was made in the second year, but it was so difficult to get parental permission for these students to be in the study that the size of the group was never sufficient to make any valid comparisons. In the third year, a group of mentees who left the program during the year, or for whom mentor matches were never found, was used as a control for analyses of changes in grades and attendance. Too few of them had complete sets of TSCS scores for this group to serve as a control for that test.

RESULTS

School attendance records: Attendance records showed no significant change from seventh grade to eighth grade in any of the three years. While some mentees increased their attendance, just as many decreased theirs or didn't change their attendance patterns. The "strong" group did have fewer absences during eighth grade than did the group as a whole, but the difference between them and the rest of the group was not statistically significant.

School grades: During the first year of the program, 61% of mentees had better cumulative GPA's in eighth grade than they had had in seventh grade. During the second year of the program, 65% of mentees had better grades in eighth grade than they had had in seventh grade. An analysis of the changes in GPA during these two years confirmed that they were statistically significant but also highlighted several limitations.

A closer look at these data revealed that the positive changes had in fact occurred at only two middle schools: Portsmouth, where the average improvement in GPA was 0.41, and Ockley Green, where the improvement was 0.27. At the other two schools, GPA's had actually fallen by 0.05 and 0.12 points, although these changes were in themselves not statistically significant. The positive changes at two of the schools were sufficient to make it appear that the whole group had improved slightly.

Another interesting pattern revealed by the analysis was that the lower the GPA the student started with, the greater his or her improvement during the year. Mentees who had seventh-grade cumulative GPA's of 2.0 or less improved their grades by an average of almost half a grade point. Although this effect could be attributed to the statistical concept of regression to the mean, the gains by the lowest group were large enough to suggest that the SMP may have been most effective for this group.

Unfortunately, none of these trends were apparent when data from the third year of the program were added. Analyses of GPA change during this year revealed that none even approached significance--average change was less than one tenth of one grade point at all four schools. There is no way of knowing whether this result is a fluke or whether it reflects a change in the program or participant selection. Members of the "strong" group did improve their grades significantly this year.

Average GPA's for all students in Portland Public Schools tend to dive by as much as entire grade point (1 in a scale of 4) when students make the transition from eighth grade to ninth grade. Sixty percent of mentees from the first year of the program had worse grades in ninth grade than they had had in eighth grade. Only 6% improved or kept their grades up in ninth grade, and the remaining 34% did not appear in the PPS database by the end of what should have been their ninth-grade year. Nevertheless, their average drop in GPA was only 0.78 grade point (from 2.45 in eighth grade to 1.67 in ninth grade), somewhat less than the average for all PPS students. Given that their grades were lower to begin with, this difference may again be attributed to regression to the mean; however, it was repeated by the mentees in the second-year group. By the end of tenth grade, the average had recovered only slightly, to 1.79. By this year, too, only 16 of the original 38 mentees were still in the PPS database.

For mentees in the second year of the program, the drop from eighth grade to ninth grade was even smaller: 0.59 grade point (from 2.75 in eighth grade to 2.16 in ninth grade). At the end of what should have been their ninth-grade year, 54 out of the original 85 mentees were still in the PPS database. For those in the third year of the program, of course, the drop will not be evident until they complete ninth grade in June of 1993.

The loss of students from the database over time is a serious problem for the program evaluation, because the fewer the data available for analysis, the more difficult it becomes to demonstrate a change that is statistically significant. In addition, the students who are lost from the database include school dropouts, who are likely to be the lowest achievers academically; hence the findings become biased as those who may bring the averages down are dropped from the study. The drop in numbers, however, does not indicate that all those missing from the PPS database have necessarily dropped out of school. Typically, the students with whom the SMP works are highly mobile; many of them may have moved to other areas and other schools. Some, unfortunately, may have dropped out, but not nearly as many as the numbers in the database suggest.

For a complete report of the studies made of grades and attendance records, see Appendix A.

Mentee interviews: Although an attempt was made to subject the responses on the interviews to a quantitative analysis, it was not successful: the interview protocol did not fit the requirements of the statistical analysis program. Instead, a summary was made of the interviews that focused on two topics: mentee attitudes about their education, career and future; and their attitudes about the mentoring program itself.

Of the 20 mentees for whom complete sets of before-and-after interviews were available, 6 seemed to have a clearer idea of their plans for the future after their year with a mentor; 13 seemed to be no more clear, and 1 seemed less certain about his plans.

Year-end interviews were completed for almost all the students in the program (35 out of 38). Of these, 25 said they liked the program, 4 did not, and 6 had mixed feelings. Those with mixed or negative feelings in most cases were mentees whose mentors had had difficulty in maintaining their mentoring commitment throughout the year. More than a third (13) said they had a better idea of what college life was like as a result of having a mentor.

The individual who summarized the interview responses--who was independent of the program--drew this conclusion: "The interviews make it clear that many mentees appreciate having: a friend, a counselor, a tutor, and some exposure to college life. Most of the mentors seem to have achieved at least one of these functions successfully, and many achieved several." (For the complete summary, see Appendix B).

Tennessee Self-Concept Scale: Of all the measures used, the TSCS lends itself best to a variety of analyses to determine not only whether the group as a whole changed during the mentoring year, but also whether individual subgroups changed, or whether change occurred with respect to a particular aspect (i.e., on a particular scale) of self-concept. The results show that no significant change was registered for the group of all mentees, either in the total score or on any one of the ten scales. Sorting the group by gender or ethnicity also did not reveal any significant differences.

Although changes in scores were not evident, it was interesting to note that both the school a mentee went to and his/her ethnicity were associated with different average scores. African American students scored significantly higher than did Caucasian students on two scales, and students at Whitaker scored significantly higher, in general, than students at the three other schools.

The results most interesting for the SMP, however, are those that show that the "strong" group showed significant positive change on two scales: self-satisfaction and personal self. These results suggest that the strength of the relationship is an aspect of the SMP that contributes to positive change in mentees, and tends to refute the theory that just being selected for the program contributes to measurable change.

A complete set of test results and a definition of the scales of the TSCS are in Appendix C.

Teacher and parent questionnaires: These instruments have not been demonstrated to be reliable or valid in a statistical sense; however, an analysis of their results can at least indicate a potential for statistically significant change. The graduate student who collected these data in the second year of the program did attempt such an analysis and found no indications of significant change.

In the third year of the program, too few complete pairs of year-beginning and year-end questionnaires were collected from either parents or teachers to be a useful measure of the change either group observed. Initial data collection was moderately successful at two middle schools and less successful at the other two. Year-end data collection was successful at one of the schools from which few initial data were collected, and less successful at the other three schools. Hence very few complete pairs of questionnaires were collected.

It was interesting to note, however, that both (small) groups indicated that statements about how much the SMP would benefit the student were slightly less true at year-end than at the beginning of the year. Perhaps the program did not do a good job of giving parents and teachers a realistic idea of what the program can provide.

Interviews and Structured Statements: All middle-school contacts felt the program was valuable and served a need at their schools. In particular it served students who would not otherwise be noticed and/or who would not otherwise have had a realistic expectation of what it takes to go on to college. The principals in general relied on their staff to run and assess the programs at their schools; hence their reports threw little further light on the program than did those from the middle-school contacts. The PPS liaison was best able to show where the Student Mentoring Program fit into the collection of services available to middle-school students. She confirmed the reports of middle-school contacts that it provided a service to students who might otherwise "fall through the cracks." In addition, her report spoke strongly about the cost-effectiveness of the program relative to other mentoring programs in the Portland Public Schools.

Mentor Questionnaires: Best interactions with mentees were all reported to have occurred in unstructured activities such as those below, with the exception of the challenge course, which also generated good interaction and was participated in by 22% of pairs. Most popular activities included going to movies, participating in middle school events together, playing sports, cruising the mall, participating in college events together, and going on field trips such as to the beach or Kahneeta Hot Springs

Eighty-eight percent of mentors visited their mentees' homes at least twice; nearly half visited at least seven times. Fifty percent of mentees visited their mentor's campus at least three times; only six percent did not visit at all.

The questions about what the mentor learned and thought his/her mentee learned from the program garnered a range of responses, which fell into four general categories: mentors had learned more about themselves, about the social circumstances in which their mentees grew up, about how to see things from other peoples' points of view, and about how to maintain a relationship under sometimes difficult circumstances. Mentors thought mentees learned more about the world outside their own neighborhoods and developed some self-confidence and awareness of their college potential.

Mentor Year-End Discussions: These discussions prompted some of the changes that were made in the third year to try to improve the effectiveness of the program. They revealed the suggestion that more group activities be planned (although mentors at the end of the second year seemed to want more activities for students from all four colleges than did the mentors who participated the third year), that pairs having difficulties be given the option to start over again with another partner if repeated efforts over the first several weeks did not help the pairing work, and that the challenge course be used early in the school year to help the pairs form. Responses to questions about what the mentors learned followed the same pattern as the short written responses.

UTILITY OF EACH INSTRUMENT

The search for a better alternative to the Tennessee Self-Concept Scale should continue, but the improved scoring of the "strong" group on two of its scales indicates that it may be of some use for evaluating a program of this sort. It has several drawbacks: It must be purchased from its publisher at moderate expense, and while it is relatively easy to administer, its publisher insists that the person overseeing its use have a least a master's degree. It takes some time and effort to score and average the scales--much more so than on the simpler questionnaires that the SMP designed. It includes questions that are embarrassing to early adolescents--for example, when asked to rate how true or false the statement "I have lots of friends who are boys" was, girls inevitably giggle, and boys need reassurance that if they say this is true it doesn't mean they are gay.

The interview protocol that the TSCS replaced had something completely different to offer: it was extremely specific to the program, it provided good information for improvement of the program, but it didn't provide quantifiable results. In addition, it was extremely time-consuming and expensive to administer and transcribe the interviews.

Data on grades and attendance are relatively easy to collect once the initial legwork is completed. They are worth getting for the potential they have to help show differences between schools and programs even if they don't show an overall change, which is unlikely unless the program is geared specifically towards improving grades and/or attendance (i.e., it is a tutoring program).

Unless a means exists to collect more of them, the teacher and parent questionnaires are not worth using. They are not likely, even under the best of circumstances, to provide reliable numbers about extent of observed change, but they can indicate whether trends were positive or negative.

Statements from school staff and year-end mentor questionnaires and discussions provided the program staff with little new information. They were useful for documenting the program for others, however.

RECOMMENDATIONS

If a program needs to demonstrate its effectiveness numerically for a funder, and has the money to use the TSCS, it may be worth trying. The interviews were more useful for getting information to improve the program and getting children's accounts of what they learned; they might be used by programs that don't have to demonstrate a quantifiable change. Because the cost of transcribing interviews is

prohibitive, an alternative might be to ask each mentor to conduct a year-end interview with his/her mentee and fill out a form that generalized the responses (although mentors might be biased in seeing positive changes in their own mentees). In a smaller program or one with more staff, a staff contact might also do this interview, or the staff, mentor, mentee, and even a parent might all have a year-end meeting.

Better relationships with parents and teachers would improve the numbers of responses from them. It would be useful for a staff person to make a presentation each fall to the teachers at each middle school not only about the program, but about its evaluation. If the importance and usefulness of the evaluation were stressed, and teachers were assured that little of their time would be taken up by it, they might be more inclined to complete the questionnaires that cross their desks. Interviewing them would also garner responses, but this would require an immense amount of time put into an instrument that is likely only to be able to show trends anyway.

Having parents come to a year-end meeting would be beneficial for both the program and the evaluation. Questionnaires could be collected easily, mentors and mentees con-gratulated, and staff would have another opportunity to talk with parents about their general impressions of the program.

APPENDIX A:

Evaluation Forms

STUDENT MENTORING PROGRAM
PARENT QUESTIONNAIRE

Student's Name _____ School _____ Date _____

For each statement below, circle the number that indicates how accurately that statement describes your child. A 1 designates a statement that is totally false; a 5 is totally true, and 2, 3, and 4 represent possibilities in between:

totally false	mostly false	partly true partly false	mostly true	totally true
1	2	3	4	5

EXAMPLE: My child is in the Student Mentoring Program. 1 2 3 4 5
For this statement, you would circle the number 5, because this statement is totally true for your child.

1. My child gets along with other children. 1 2 3 4 5
COMMENTS:

2. My child follows household rules. 1 2 3 4 5
COMMENTS:

3. My child has a positive self-image. 1 2 3 4 5
COMMENTS:

4. My child regularly does assigned homework. 1 2 3 4 5
COMMENTS:

5. My child's grades reflect his/her potential to complete high school. 1 2 3 4 5
COMMENTS:

6. My child will complete high school. 1 2 3 4 5
COMMENTS:

7. My child will attend college. 1 2 3 4 5
COMMENTS:

8. I have a good relationship with my child. 1 2 3 4 5
COMMENTS:

9. My child will have a good relationship with his/her mentor. 1 2 3 4 5
COMMENTS:

10. My child will benefit from his/her relationship with his/her mentor. 1 2 3 4 5
COMMENTS:

11. The Student Mentoring Program will have a positive effect on my child. 1 2 3 4 5
COMMENTS:

STUDENT MENTORING PROGRAM
PARENT QUESTIONNAIRE

Student's Name _____ School _____ Date _____

For each statement below, circle the number that indicates how accurately that statement describes your child. A 1 designates a statement that is totally false; a 5 is totally true, and 2, 3, and 4 represent possibilities in between:

totally false	mostly false	partly true partly false	mostly true	totally true
1	2	3	4	5

EXAMPLE: My child was in the Student Mentoring Program. 1 2 3 4 5
For this statement, you would circle the number 5, because this statement was totally true for your child.

1. My child gets along with other children. 1 2 3 4 5
COMMENTS:

2. My child follows household rules. 1 2 3 4 5
COMMENTS:

3. My child has a positive self-image. 1 2 3 4 5
COMMENTS:

4. My child regularly does assigned homework. 1 2 3 4 5
COMMENTS:

5. My child's grades reflect his/her potential to complete high school. 1 2 3 4 5
COMMENTS:

6. My child will complete high school. 1 2 3 4 5
COMMENTS:

7. My child will attend college. 1 2 3 4 5
COMMENTS:

8. I have a good relationship with my child. 1 2 3 4 5
COMMENTS:

9. My child had a good relationship with his/her mentor. 1 2 3 4 5
COMMENTS:

10. My child benefitedfrom his/her relationship with his/her mentor. 1 2 3 4 5
COMMENTS:

11. The Student Mentoring Program had a positive effect on my child. 1 2 3 4 5
COMMENTS:

STUDENT MENTORING PROGRAM
TEACHER QUESTIONNAIRE

Student's Name _____ School _____ Date _____

For each statement below, circle the number that indicates how accurately that statement describes the student named above. A 1 designates a statement that is totally false; a 5 is totally true, and 2, 3, and 4 represent possibilities in between:

totally false	mostly false	partly true partly false	mostly true	totally true
1	2	3	4	5

EXAMPLE: This student is in the Student Mentoring Program. 1 2 3 4 5
For this statement, you would circle the number 5, because this statement is totally true for this student.

1. This student gets along with other children. 1 2 3 4 5
COMMENTS:

2. This student follows school rules. 1 2 3 4 5
COMMENTS:

3. This student has a positive self-image. 1 2 3 4 5
COMMENTS:

4. This student regularly does assigned homework. 1 2 3 4 5
COMMENTS:

5. This student's grades reflect his/her potential to complete high school. 1 2 3 4 5
COMMENTS:

6. This student will complete high school. 1 2 3 4 5
COMMENTS:

7. This student will attend college. 1 2 3 4 5
COMMENTS:

8. I have a good relationship with this student. 1 2 3 4 5
COMMENTS:

9. This student will have a good relationship with his/her mentor. 1 2 3 4 5
COMMENTS:

10. This student will benefit from his/her relationship with his/her mentor. 1 2 3 4 5
COMMENTS:

11. The Student Mentoring Program will have a positive effect on this student. 1 2 3 4 5
COMMENTS:

STUDENT MENTORING PROGRAM
TEACHER QUESTIONNAIRE

Student's Name _____ School _____ Date _____

For each statement below, circle the number that indicates how accurately that statement describes the student named above. A 1 designates a statement that is totally false; a 5 is totally true, and 2, 3, and 4 represent possibilities in between:

totally false	mostly false	partly true partly false	mostly true	totally true
1	2	3	4	5

EXAMPLE: This student is in the Student Mentoring Program. 1 2 3 4 5
For this statement, you would circle the number 5, because this statement is totally true for this student.

1. This student gets along with other children. 1 2 3 4 5
COMMENTS:

2. This student follows school rules. 1 2 3 4 5
COMMENTS:

3. This student has a positive self-image. 1 2 3 4 5
COMMENTS:

4. This student regularly does assigned homework. 1 2 3 4 5
COMMENTS:

5. This student's grades reflect his/her potential to complete high school. 1 2 3 4 5
COMMENTS:

6. This student will complete high school. 1 2 3 4 5
COMMENTS:

7. This student will attend college. 1 2 3 4 5
COMMENTS:

8. I have a good relationship with this student. 1 2 3 4 5
COMMENTS:

9. This student had a good relationship with his/her mentor. 1 2 3 4 5
COMMENTS:

10. This student benefited from his/her relationship with his/her mentor. 1 2 3 4 5
COMMENTS:

11. The Student Mentoring Program had a positive effect on this student. 1 2 3 4 5
COMMENTS:

STUDENT MENTORING PROGRAM

END-OF-YEAR QUESTIONNAIRE FOR MENTORS

Please check which of the following activities you participated in with your mentee and whether you felt the activity was worthwhile, either for developing your relationship with your mentee or for teaching/exposing him/her to new things (or both). If you did the activity more than once, please write the number of times you did it.

	We did it and it was worthwhile	We did it, but it wasn't worthwhile	It sounds worthwhile, but we didn't do it	Didn't do it, didn't think it was worthwhile
Went to movies				
Cruised the mall				
Went on a day-long field trip such as to beach, Kahneeta, etc.				
Went on challenge course				
Rode public bus				
Visited a library				
Played sports				
Watched TV				
Played Nintendo, foosball, pool, etc.				
Went to concert or museum				
Watched or participated with mentee in school program, athletic event, etc.				
Mentee watched or participated with me in college program, athletic event, etc.				
Studied together				
Visited mentee's prospective high school				
Helped with high school forecasting				
Helped with application to a magnet school				
Talked with middle-school contact person about mentee				
Talked with college contact person about mentee				
Talked with student coordinator on your campus about mentee				
Talked with program coordinator about mentee				

If you thought some of the above activities were worthwhile, but you didn't do them, was it because (check as many as apply)

_____Didn't have time
_____Couldn't get mentee interested in it
_____Cost too much
_____Other (what?) _____

What else did you do with your mentee?

How did you spend the activity money you were given to use with your mentee? (Check all that apply)

_____Meals
_____Concert or play tickets
_____Movie tickets
_____Sporting events tickets
_____Bus fare
_____Equipment or supplies to use with student
_____Fees to do something (bowling, skiing, video games, etc.)
_____Other (what?):_____

How many times did you visit your mentee's home? _____
How many times did you visit your mentee's school?_____
How many times did your mentee visit your campus?_____
(Include all visits during which you did any of the activities you checked above, plus any other visits)

How often did you attend mentor meetings?
_____Always _____Most of the time _____Sometimes _____Rarely
If you missed a meeting, was it because:
_____I had too much academic work to do
_____Schedule conflict (with class, work, sports practice, etc.)
_____They weren't worthwhile
_____Other reason: _____

In one sentence, what did you learn from being a mentor?

What did your mentee learn from you?

Name (optional):_____

APPENDIX B:

STATISTICAL ANALYSIS OF GRADES

written by Dylan McGee

INTRODUCTION

The main question asked in the analysis is whether the eighth graders in the mentoring program had significantly higher GPAs in eighth grade than they had in seventh grade. The data used were the cumulative GPAs for each mentee in seventh and in eighth grade. The main variable scrutinized was the difference between the before and after GPAs for each mentee. (i.e. 8th-grade GPA versus 7th-grade GPA). This variable is called DIFF. It is assumed that substantial positive values of DIFF would reflect improvement due to the program.

Statistical analysis of grades for the students in the mentoring program took two forms. Some were done in SAS using f-statistics to test hypotheses, and some were done by constructing confidence intervals using t-statistics. The patterns identified were basically the same in both cases. The analysis was done first with data from the first two years of the program, and then with three years worth of data, when grades for 1992 were available.

Years 1 and 2

The basic method used was to test whether the mean of DIFF was significantly different from 0. If the program had no effect on GPA levels, the distribution of the random variable DIFF would be expected to have mean 0. Using the sample mean of DIFF we establish confidence intervals, which bound the likely values of the true mean of DIFF. If a 95% confidence interval predicts that the mean is greater than 0 we say the the sample mean is significantly different from 0 at the .05 level. In year one the mean of DIFF for the 28 mentees was 0.083. This does not appear to be a robust margin of improvement, and could not be distinguished as significantly different from 0. The following one sided confidence interval was calculated using a t-statistic:

$-0.101 < M$ with 90% confidence

where M is the true mean for the distribution of DIFF.

In the second year of the program, however the sample mean of DIFF was 0.184, which is sufficiently big to be significantly different from 0. In fact a 99% confidence interval for the true mean showed that:

$0.027 < M$ with 99% confidence.

Also, for pooled data from both years a 99% confidence interval suggests that the true mean is greater than 0. However, the means of DIFF within each of the four middle schools tended to vary greatly, as the following chart suggests.

School	Sample Mean of DIFF	Is it significantly different from 0?
Portsmouth	0.328	YES
Ockley Green	0.311	YES
Lane	-0.082	NO
Whitaker	0.077	NO

These averages for the pooled data from the first two years show that there was much more improvement at some schools than others. This idea is further illuminated by the three histograms presented in the appendix to this report. The height of the column reflects the number of mentees for whom DIFF was in a given range. If the true mean were 0, one would expect the histograms to be unimodal and symmetric with a peak near 0. Instead, on the histogram for DIFF, there is a bump to the right of 0. This suggests that a certain subgroup is improving as a result of the mentoring program, while many are not being affected. Looking at the two histograms for the values from Portsmouth/Ockley Green and Lane/Whitaker, it is clear that more of the positive values of DIFF are for mentees from the former two schools.

As one would expect, analysis of the same data in SAS revealed the same patterns. Instead of comparing the sample mean of DIFF to 0, the slightly different hypothesis was whether the variable of TIME (i.e. 7th versus 8th grade) had no effect on GPA levels. (The idea is that if TIME has an effect it is probably due to the mentoring program.) An f-statistic, representing the ratio of variation between 7th- and 8th-grade GPA levels to variation of GPA levels within 7th and 8th grade, allows for testing whether grades in 7th grade were significantly different from those in 8th grade. An f-statistic value of 3.58 allowed rejection of the no-effect hypothesis with only a 6% probability of error. Hence something seems to be causing grades to be higher in 8th grade. When the GPA data were divided into categories based on both TIME and SCHOOL, the resulting f-statistic allowed for the conclusion that the variable of TIME*SCHOOL has an effect on GPA levels with only a 0.1% chance of error. This once again verifies that improvement varied from school to school.

Another hypothesis tested was whether mentees with lower GPAs in 7th grade tended to improve more than those with higher GPAs in 7th grade. The data for the first two years showed the following:

Group	Average of DIFF
GPA < 2	0.49
2 < GPA < 2.5	0.19
2.5 < GPA < 3	0.13
3 < GPA	0.16

One might be tempted to conclude from these averages that the mentoring program induced improvement in students with lower GPAs. However, since it is normal for values of of a variable to regress toward the mean in repeated observations, we cannot be confident of such an effect.

Years 1,2, and 3

After data on grades from year 3 came in, all the data were pooled and analyzed in SAS. A number of hypotheses were tested by the generation of f-statistics. These f-statistics show whether we can confidently reject the hypothesis that a variable has no effect on the level of GPA. The following is a list of all effect variables which were tested, with their accompanying f-statistics and significance levels. The significance level represents the probability of getting an f-statistic as high as that listed under the hypothesis that the variable in question has no effect on GPA levels.

EFFECT VARIABLE	F-STATISTIC	SIGNIFICANCE LEVEL
SCHOOL	2.49	0.063
YEAR	0.78	0.469
GENDER	0.00	0.997
ETHNICITY	1.49	0.209
SCHOOL*YEAR	2.42	0.029
SCHOOL*GENDER	0.53	0.665
SCHOOL*ETHNICITY	0.71	0.702
TIME *SCHOOL	3.50	0.017
TIME*SCHOOL*YEAR	2.68	0.017
TIME	0.43	0.511

The first point to note is that with 3rd year data included the TIME effect is not at all significant. As later figures will show this is because there was very little change in GPA's in the 3rd year of the program. However the low valued significance levels for TIME*SCHOOL and TIME*SCHOOL*YEAR reveal that changes in grades were significant at some schools in some years. To say exactly how significant, and at which schools, it is useful to look again at the variable DIFF, and construct simultaneous confidence intervals.

Since we need to construct confidence intervals for the true mean of DIFF in 4 different schools and for 3 different years, we must broaden our confidence interval so that all statements will be valid at the same time. The following is a list of sample means for DIFF with confidence intervals. When looking at 12 school/year groups as well as 3 other groups (to be discussed later) it is necessary to construct 15 confidence intervals. Each interval is for a 99.5% confidence level, so that all 15 intervals are true with roughly 93.7% probability (based on a standard statistical approximation).

School/Year	Sample mean	99.5% Confidence Interval (one sided)
Lane/1	.011	true mean > -.367
Lane/2	-.139	true mean < .106
Lane/3	.058	true mean > -.197
Ockley Green/1	.183	true mean > -.213
Ockley Green/2	.311	true mean > -.085
Ockley Green/3	.035	true mean > -.285
Portsmouth /1	.582	true mean > -.020
Portsmouth /2	.371	true mean > . 076***
Portsmouth /3	-.081	true mean < .349
Whitaker/1	-.483	true mean < -.002***
Whitaker/2	.077	true mean > -.193
Whitaker/3	-.053	true mean < .217
3rd-year groups		
strong	.371	true mean > . 109***
incomplete	-.210	true mean < . 255
all others	-.141	true mean < .079

Among the school/year groups, only two means are significantly different from 0, and one of those is significantly negative. Hence, if we use the above significance level criteria we can be confident of improvement only at Portsmouth in year two. However, a more intuitive analysis focusing on sample means shows that 4 groups improved by 0.183 or more, while only one decreased by that much. This indicates that although we cannot prove it beyond a shadow of doubt, it is likely that the program helped in a number of schools and years.

The "3rd-year groups" above include mentees in a "strong" group who were identified by teachers as having had particularly good relationships with their mentors. The "incomplete" group comprises 3rd-year mentees who did not finish the program, and the last group includes all 3rd-year mentees not in the first two categories. The high and statistically significant mean of DIFF for the strong group verifies that the program helped those 17 mentees improve their grades. This shows that even in a year (year 3) when DIFF was not impressive overall, there is a decent-size subgroup of mentees who improved their grades during the year they were in the program.

Ninth and tenth grade GPA

The following indicates how mentees performed in high school after the program was over:

Year 1 mentees: 9th-grade mean GPA = 1.67, down from 2.45 in 8th grade (21 observations)

Year 2 mentees: 9th-grade mean GPA = 2.16, down from 2.75 in 8th grade (54 observations)

Year 1 mentees: 10th-grade mean GPA =1.79 (16 observations).

Information provided by Management Information Services of Portland Public Schools indicates that average GPAs tend to plummet by nearly 1 point from 8th to 9th grade. The grades of the mentees did not fall by this much; however, since the mentees started at a lower than average GPA level, it is hard to draw any conclusions about whether they find it easier to perform academically in high school.

Attendance Records

The means and standard deviations of total absences in 8th grade for the 3 groups of third-year mentees were calculated as follows:

strong group mean = 54.1 (sd = 58.3)
incomplete group mean = 82.7 (sd = 69.6)
all others mean = 89.8 (sd = 80.6).

Although the strong group did have fewer absences, the differences clearly are not statistically significant.

APPENDIX C:

Summary of Interviews
written by Dylan McGee

For the first year mentees there were 20 complete sets of before and after interviews and another 15 interviews from after the program. The following is a summary of those interviews which focuses on two topics: mentee attitudes about their education, career and future, and their attitudes about the mentoring program. Attitudes about education, career and the future will be dealt with first.

The interviews were read in an attempt to see if the mentees discussions of their plans and goals reveal changes in their notions of what is possible and how they can attain it. All the mentees had some career goal in mind and most planned to go to college, but the ideas were all very tentative and few had a detailed knowledge of educational requirements (as is reasonable for eighth graders). Six of the 20 seemed to have more specific plans for (or knowledge about) college after the program. One actually seemed less confident about going to college after the program. The remaining 13 seemed to have the same level of knowledge and realism about their possible futures (if not the exact same plan) after the program.

Almost all mentees said that their families wanted them to go to college, with the remaining 1 or 2 saying that they did not know but assume that was the case. All the mentees said they would keep going to school even if they did not have to. Four students mentioned the pride of being the first in their family to get a degree as a motivation for going to college. Five mentioned the job motive explicitly as their reason for getting educated, and that motive seems implicit in the discussions of many others. It should also be noted that many of the mentees have more specific plans for high school at the time of the second interview, but this is probably more due to the timing of the interviews than any effects of the program.

It is difficult to draw firm conclusions, but the main point seems to be that six of the mentees have more specific plans, and or a better awareness of college and career opportunities, after the mentoring program.

Of the 35 mentees interviewed, 25 liked being in the program, 4 did not like it, and 6 had mixed feelings. Three of those who did not like it were from Whitaker, and their dislike was due to mentors who neglected them totally or partially. Indeed, most of those who disliked the program, or had mixed feelings, had been neglected, although 1 or 2 of them did not seem interested in having a mentor. Roughly half of the Warner Pacific mentors put little or no effort into mentoring for students at Whitaker. The other schools had very few neglectful mentors.

The most common statements by mentees were to the effect that they liked going places, doing things, and talking. Thirteen of 35 said they liked going places and doing things. The most common activities were visits to the college, movies, eating out, and coast trips. Thirteen said they liked talking, 2 of them saying specifically that they got important, quality advice from their mentor; and 1 saying that she enjoyed having someone with whom to share her emotions. All these comments reveal that mentees greatly enjoy having an older friend.

Thirteen of the mentees stated that they learned about college as a result of the program. Nine said they learned it is hard, and or a lot of work. A few of these 9 said they learned it is hard but fun, and all those who mentioned learning about college seemed inspired to go rather than intimidated by the challenge.

Another frequent comment was that the mentor helped with school. Eleven mentees said they got help on their homework: 6 of them saying that their grades improved as a result, and or stressing the quality of the help. Along the same lines, 6 mentees responded to a specific question about who they would turn to for help with school problems by saying they would ask their mentor.

Conclusion

One mentee asked during her first interview: what is in it for them(the mentor)? Her suspicions about the selfishness of human nature were later encouraged by a neglectful mentor. Another mentee

enjoyed the program so much she planned to start a mentoring program in Louisiana after moving back there. Between these two extremes there lie a variety of experiences, the great majority of which had substantial positive impacts on the mentee. The interviews make it clear that many mentees appreciate having: a friend, a counselor, a tutor, and some exposure to college life. Most of the mentors seem to have achieved at least one of these functions successfully, and many achieved several.

APPENDIX D:

Analysis of Scores on the Tennessee Self-Concept Scale

written by Brian Weir

Methods

Students from four different Portland middle schools were scored on the Tennessee Self-Concept Scale (TSCS) when they first enrolled in the Student Mentoring Program and when they completed the program. The TSCS is a questionnaire consisting of 100 self descriptive statements designed to reflect how the subject conceives himself or herself. Example statements are:

I am neither too tall nor too short.

I try to change when I know I'm doing things that are wrong.

I find it hard to talk to strangers.

I am a bad person.

I am satisfied to be just what I am.

Each student rated how well each statement described himself or herself on a five point scale ranging from "completely false" to "completely true". The tests were then scored, yielding ten composite scores reflecting different components of self-concept:

Self Criticism--The statements composing this scale are derogatory statements or "common frailties" most people would admit to when responding candidly. A person who denies most of these statements (i.e., obtains a low score) is being defensive and is trying to present a favorable picture of himself or herself.

Identity--This scale is comprised of "what I am" statements reflecting an individual's basic identity, as self-perceived.

Self Satisfaction--This scale reflects how satisfied the individual feels with the perceived self-image. Self acceptance.

Behavior--The individual's view of his or her own behavior and function.

Physical Self--The individual's view of his or her own body, state of health, physical appearance, skills, and sexuality.

Moral-Ethical Self--This scale reflects self-concept from a moral-ethical frame of reference, examining moral worth, relationship to God, feelings of being a "good" or "bad" person, and satisfaction with one's religion or lack of it.

Personal Self--The individual's sense of personal worth, feelings of adequacy, and self-evaluation of his or her personality apart from the physical self or relationship to others.

Family Self--The individual's feeling of adequacy, worth, and value as a family member.

Social Self--The individual's sense of adequacy, worth, and value in social interaction with other people in general.

Total Score--This scale is composed of all statements excluding those composing the Self Criticism scale. Total Score reflects the individual's overall level of self-esteem.

The scores were analyzed with a repeated measures multivariate analysis of variance (MANOVA) design using Systat statistical software. The variables were:

Between subject variables

School--Lane (N=23), Portsmouth (36), Ockley-Green (22), or Whitaker (21).

Sex--Female (55) or Male (47).

Ethnicity--African-American (43), White (45), or Other (14). The number of students from other ethnic groups (such as Asian-American and Native American) was small, so they were grouped together in the "Other" category.

Relationship--Strong (16) or Standard (86). Strength of mentor-mentee relationship. Students who were deemed by their teachers to have exceptionally strong relationships with their mentors were compared to the other students.

Within subject variables

Time--First or second administration of the TSCS.

Scale--Students were assessed on ten scales as previously described.

A separate analysis was carried out for total score to protect against collinearity. As described by Darlington (1990), "Collinearity is the loss of power of hypothesis tests and precision of estimation that results from highly correlated regressors . . . [which] arises when some regressors have extremely low tolerance, indicating that they can be predicted very accurately from one or more other regressors." In short, including Total Score in the analysis would increase the number of dependent variables (thus decreasing the degrees of freedom) without providing any new information to the analysis, as Total Score is merely an aggregate of the other scales. For this reason, a separate analysis of variance was carried out for Total Score.

A total of 102 students completed both the initial TSCS (T1) and the final TSCS (T2). Eighty-eight of these students were either African-American or White and were included in the Ethnicity analysis.

Results

MANOVA results for the TSCS subscales are presented in Table 1, and results for Total Score are presented in Table 2. For the between subjects analyses, no significant differences were found in regards to Sex, Ethnicity, or mentor-mentee Relationship. A significant difference was found for School ($p<.05$). For the within subjects analyses, significant differences were found for Scale ($p<.001$), Scale*School ($p<.01$), Scale*Ethnic ($p<.01$), and Scale*Time*Relationship ($p<.05$).

Table 1. MANOVA Results for Subscales.

Source	DF	F	p
Between Subjects			
School	3	2.827	.043
Sex	1	2.722	.102
Ethnicity	2	1.250	.291
Relationship	1	.053	.818
Within Subjects			
Scale	8	922	.000
Scale*School	24	1.832	.009
Scale*Sex	8	1.655	.106
Scale*Ethnicity	16	2.154	.005
Scale*Relationship	8	0.460	.885
Time	1	0.020	.888
Time*School	3	1.132	.340
Time*Sex	1	1.085	.300
Time*Ethnicity	1	1.153	.320
Time*Relationship	1	1.956	.165
Scale*Time	8	1.478	.131
Scale*Time*School	6	0.909	.590
Scale*Time*Sex	2	0.470	.878
Scale*Time*Ethnicity	4	0.558	.915
Scale*Time*Relationship	2	2.172	.028

The separate analysis on Total Score yielded no significant results, although the effect for School approached significance (p=.057). The lack of significant changes in Total Score over time indicates that either students' general self-esteem did not change while enrolled in the SMP, or that the TSCS is too insensitive to detect changes in general self-esteem within individuals over time.

Table 2. MANOVA Results for Total Score.

Source	DF	F	p
Between Subjects			
School	3	2.603	.057
Sex	1	1.960	.165
Ethnicity	2	1.448	.240
Relationship	1	.076	.783
Within Subjects			
Time	1	.064	.801
Time*School	3	.999	.397
Time*Sex	1	1.073	.303
Time*Ethnicity	1	1.055	.352
Time*Relationship	1	2.005	.160

The significant difference between schools indicates that students at Whitaker have higher general self-concept than students at the other schools (See Fig. 1). Furthermore, the significant Scale*School interaction indicates that the difference between schools is significantly stronger on some scales than others. The difference between schools was significantly higher for Identity ($F=2.903$, $p<.05$) and for Behavior ($F=3.622$, $p<.05$). While students' self-concept differs between the schools, the lack of a significant Time*School interaction indicates that enrollment in the SMP did not affect self-concept at one school any more or less than at another. The significant difference between scales is expected, as the scales are designed to measure different components of an individual's self concept, and as some of the scales are composed of more statements than others. The significant Scale*Ethnicity interaction indicates that the difference in scores between ethnic groups differs from scale to scale. African Americans scored significantly higher on Identity ($p<.05$) and on Physical Self ($p<.05$) (see Fig. 2).

Although there was not a significant Time*Relationship interaction ($p=.16$) the significant Scale*Time*Relationship interaction ($F=2.172$, $p<.05$) demonstrates that there was a difference between the strong mentor-mentee group and the standard mentor-mentee group on some of the scales. The students in strong mentor-mentee relationships had more positive increases in Self Satisfaction ($F=5.089$, $p<.05$) and in Personal Self ($F=4.760$, $p<.05$) (See Fig. 3).

References:

Darlington, Richard B. Regression and Linear Models. New York: McGraw Hill, Inc., 1990. pp. 86, 436.

Figure 1. Mean Scores for Each School

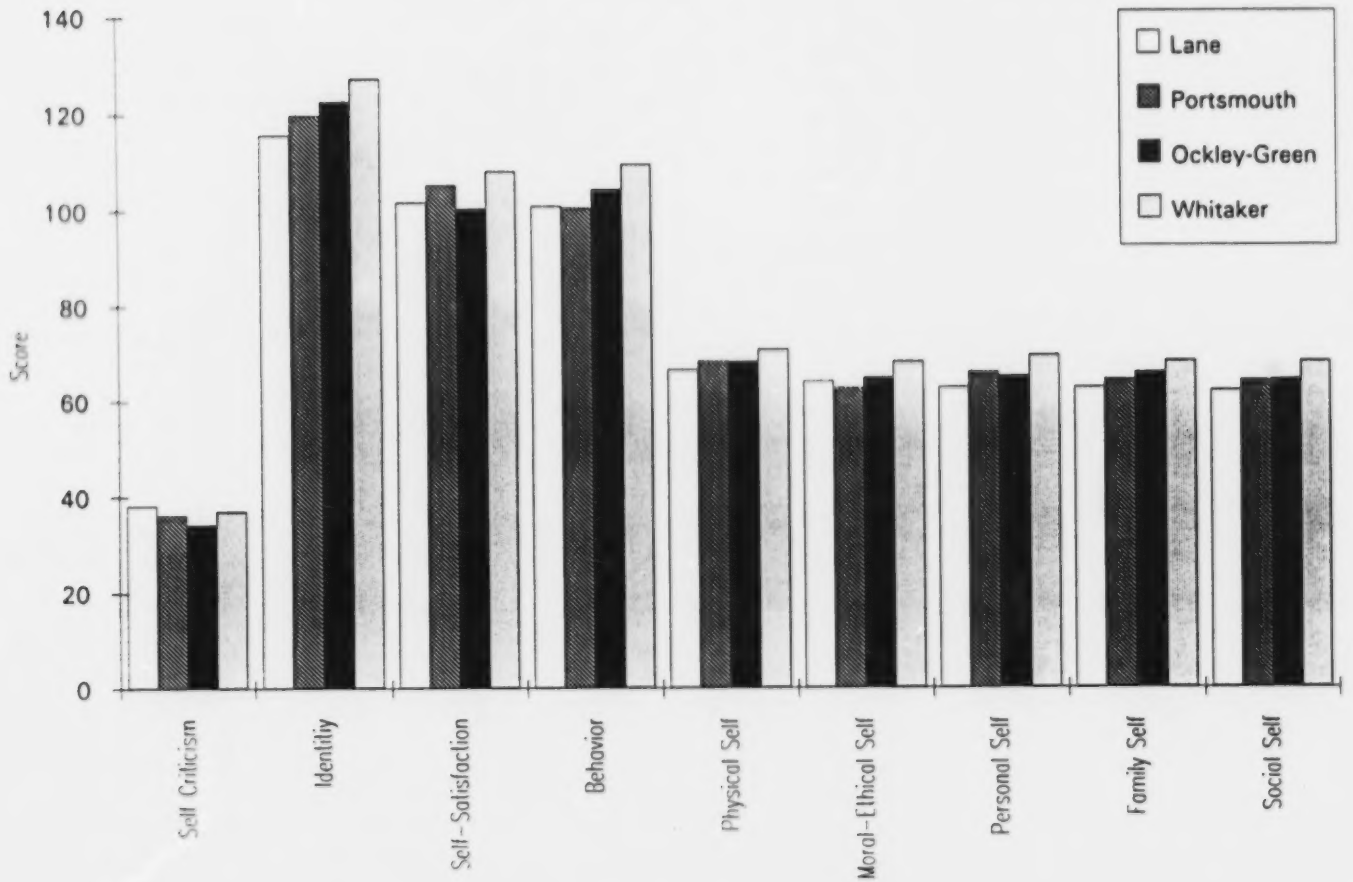

Figure 2. Mean Scores for White and African-American Students

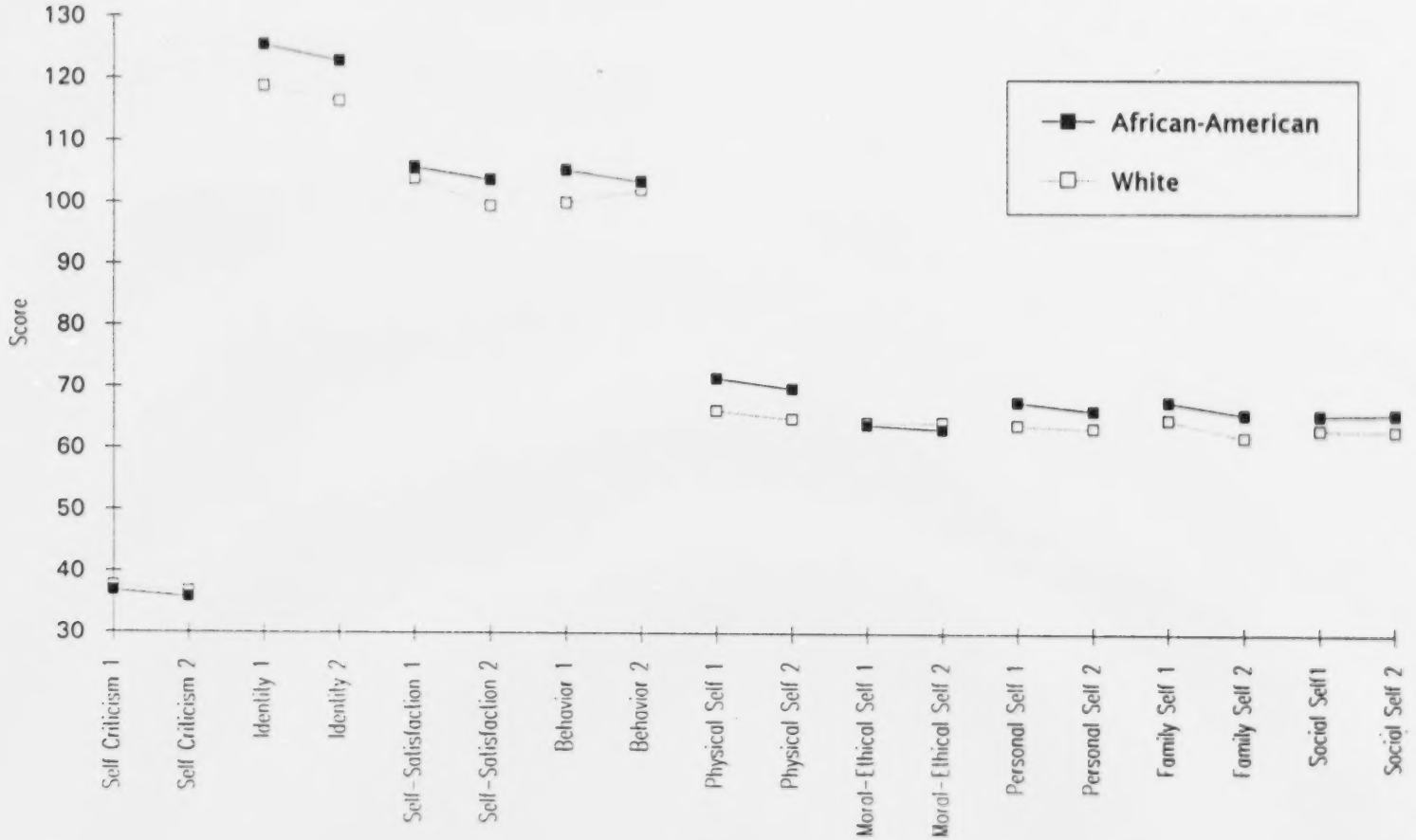

Figure 3. Mean Scores for Strong and Standard Mentor-Mentee Relationships